

## REMARKS

Claims 1-72 are pending in the present application. By this amendment, the Specification is amended. Applicants respectfully request reconsideration of the present claims in view of the foregoing amendments and following remarks. Support for the amendments to the Specification is found at Table 29 wherein code 1308 shows the correct percentages for Comparative Example 47. As such, it is respectfully submitted that no new matter has been added.

### I. Formal Matters:

#### Rejections Under 35 U.S.C. § 112

Claims 1-7 and 56 stand rejected under 35 U.S.C. § 112, second paragraph as allegedly being indefinite for claiming physical characteristics and not specific compositions. This rejection is respectfully traversed. The present invention provides a wet wipe that is unique in its combination of triggerable strength properties with consumer important properties of opacity, sheet thickness, and softness (cup crush). The present invention provides triggerable strength (dispersibility) through the use of an ion-sensitive polymer that can accommodate a wide range of water hardness. This ensures that the wipe will properly disperse after disposal over a wide geographical range of the country. The combination of these properties describes a product that is uniquely suited for disposal down a flush toilet. Until now prior art wipes have either failed to recognize the importance of combining hard water dispersibility (triggerable strength) with these other properties, failed to create hard water dispersibility, or they have failed to combine them. Table 29 in the application compares the examples of the present invention to competitive products and technologies. Therefore, the novelty and inventiveness of the present invention lie in these particular characteristics, regardless of the specific compositions used to achieve these characteristics.

The Examiner remarks that the claims are indefinite because they merely set forth physical characteristics desired in an article and do not set forth specific compositions. The Examiner furthered that "such characteristics are invalid as vague, indefinite and functional since they cover any conceivable combination of ingredients either presently existing of which might be discovered in the future."

The second paragraph of 35 U.S.C. § 112 requires claims to set out and circumscribe a particular area with a reasonable degree of precision and particularity. *See In re Johnson*, 558 F.2d 1008, 1015 (C.C.P.A. 1977). This requirement mandates claims are clear

what subject matter they encompass and thus what the patent precludes others from doing. See *In re Conley*, 409 F.2d 972 (C.C.P.A. 1974). In making this determination, the definiteness of the language employed in the claims must be analyzed, not in a vacuum, but always in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art. See *Johnson*, 558 F.2d at 1015.

Despite the Examiner's contentions, functional language is not objectionable in and of itself. See MPEP § 2173.05(g). "There is nothing indefinite in the use of claim language which defines particular amounts according to a functional criterion." *In re Spiller*, 500 F.2d 1170 (C.C.P.A. 1974) (citing *In re Fuetterer*, 319 F.2d 259 (1963), *In re Swinehart*, 439 F.2d 210 (C.C.P.A. 1971)). By definition, "functional" language defines an invention by what it does rather than what it is. See *Swinehart*, 439 F.2d at 212-213. Specifically, the *Swinehart* court remarked, "[w]e take the characterization 'functional' to indicate nothing more than the fact that an attempt is being made to define something (in this case, a composition) by what it does rather than by what it is (as evidenced by specific structure or material, for example)." *Id.* at 212. In fact, courts have "recognized the practical necessity for the use of functional language." *Id.* at 212.

The proper treatment of a functional limitation is to treat the limitation as a "means plus function" claim under 35 U.S.C. § 112. See *In re Chandler*, 254 F.2d 396 (C.C.P.A. 1958). See also *In re Oelrich*, 666 F.2d 578 (C.C.P.A. 1981); *Raytheon Co. v. Roper Corp.*, 724 F.2d 951 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 835 (1985). "The USPTO must apply 35 U.S.C. 112, sixth paragraph in appropriate cases, and give claims their *broadest reasonable interpretation, in light of and consistent with the written description in the application.*" MPEP § 2181. Moreover, "[b]readth is not indefiniteness." *In re Gardner*, 427 F.2d 786 (C.C.P.A. 1970).

When the present invention's claims are read in light of the disclosure, including the comparative examples, the claims are sufficiently clear. See, for example, *In re Robins*, 429 F.2d 452 (C.C.P.A. 1970). For instance, on page 74, lines 5-11 of the specification, the description reads:

Wet wipes made according to the present invention desirably have a wet tensile strength sufficient such that the wipes may be used without breaking or tearing. Accordingly, the wipes of the present invention desirably have a wet tensile strength of greater than about 100 g/in<sup>2</sup>. More desirably, the wet wipes have a wet tensile strength of greater than about 200 g/in<sup>2</sup>. Most desirably, the wet wipes have a wet tensile strength of greater than about 300 g/in<sup>2</sup>.

Similarly, on page 75, lines 28-36, the invention is described as follows:

Since cup crush is a measure of the softness and flexibility of the product, the lower the value, the softer and more flexible the wet wipe will be, and therefore the more desirable the product. As such, the wet wipes of the present invention desirably have a cup crush of less than about 40 g. More desirably, the wet wipes have a cup crush of less than about 35 g and even more desirably less than about 30 g. Even more desirably, the wet wipes have a cup crush of less than about 25 g and more desirably less than about 20 g. More desirably, the wet wipes have a cup crush of less than about 15 g and more desirably less than about 10 g.

Both of these excerpts define Applicants' claimed invention clearly by what the composition is supposed to do as mandated by *Swinehart*. In addition, Examples 35-47 and the corresponding Table 29 clearly depict what the present invention does that the prior art does not. Accordingly, Applicants respectfully request withdrawal of this rejection.

Claims 1-7, 32, 39-44, 56 and 61-66 stand rejected under 35 U.S.C. § 112, second paragraph for use of the term "in-use." Applicants respectfully submit that the term "in-use" refers to the properties of the wipe as received and during use. The properties of the product do not change until it is disposed of in excess water at which time the stabilizing agent is diluted, the polymer dissolves and the product falls apart. As such, a wipe inside a package would be "in-use" as this would fall within the as received wipes. It would also refer to the wipe as it is being used. The types of use would be those normally associated with this type of product. As mentioned, the properties do not change until after the product is used and only during disposal. While Applicants would be amenable to any suggestion from the Examiner regarding a proposed term that also has basis in the specification, Applicants have used the term "in-use" and have defined this term in accordance with the properties of the wipe as received and during use as shown throughout the Specification. As such, Applicants respectfully submit that this term is definite and respectfully request withdrawal of this rejection.

## **II. Prior Art Rejections:**

Claims 1-8 and 11-13 stand rejected under 35 U.S.C. § 102 (b) as being anticipated by, or in the alternative 35 U.S.C. § 103 (a) as being unpatentable over U.S. Patent No. 6,277,768 issued to Mumick et al. (hereafter "Mumick"). This rejection is respectfully traversed.

Claim 1 is directed to, *inter alia*, a wet wipe having an in-use tensile strength of greater than about 100 g/in, wherein the wet wipe has a tensile strength of less than about 70 g/in after being soaked in water having a concentration of about 10 ppm of one or more multivalent ions for about one hour, wherein the wet wipe has a tensile strength of less than about 60% of the in-use tensile strength after being soaked in water having a concentration of about 200 ppm of one or more multivalent ions for about one hour, wherein the wet wipe has an opacity greater than about 35%.

Mumick is directed to the synthesis and application of “temperature responsive binders comprising N-isopropyl acrylamide (NiPAm) polymers alone or with at least one hydrophobic polymer” (col. 1, line 15). Mumick further describes that these polymers are temperature responsive due to their Lower Critical Solution Temperature or LCST. From Mumick “...the term “LCST” describes the temperature at which the polymer solution experiences a phase transition going from one phase (homogeneous solution) to a two-phase system (a polymer rich phase and a solvent rich phase) as the solution temperature increases. These materials remain relatively inert in warm water or synthetic urine (greater than about 28° C.), but disperse quickly in cold water (less than about 25° C.) with immediate loss in mechanical strength.” (col. 1, lines 30-39). Application of these temperature responsive polymers is further “directed to water dispersible products, including flushable products such as diapers, tampons, feminine pads, pantliners, etc.” (col. 1, line 20). All of these products are designed to “retain fluids exuded from the body such as blood menstrual fluid and urine” (col. 3, line 36). They are all worn by the consumer, kept in contact with the body, and discarded after insult with the bodily fluid. Mumick relies on body heat to keep the temperature of the insulted article above 28°C (82° F) so that it does not fall apart in its moistened state.

It is respectfully submitted that Mumick fails to teach or suggest Applicants’ claimed invention. Mumick uses temperature sensitive polymers that do not satisfy provide the properties of Applicants’ claimed wipes. The temperature sensitive polymers disclosed in Mumick will not work if used in a wet wipe product. As noted above, Mumick relies on body heat to elevate product temperature above the LCST and the ambient temperature of the toilet bowl water to be below the LCST so that the product falls apart. The “cold” water of Mumick (25°C, 77°F) is reported to result in an “immediate” loss in mechanical strength”. As a result, wet wipes produced using the temperature sensitive polymers of Mumick will not be stable at room temperatures below 77°F. Storage of the product at temperatures below the polymer’s LCST would cause a premoistened wipe product to disperse into itself.

Additionally, Mumick does not explicitly or inherently teach any of Applicants' claimed properties of a wet wipe made with a temperature sensitive polymer because, unless heated above the polymer's LCST, these properties will not exist in a wipe made according to Mumick. Producing a wet wipe that must be kept heated above 82° F is not practical. Accordingly, it is respectfully submitted that Mumick fails to teach or suggest Applicants' claimed invention.

For at least the reasons given above, Applicants respectfully submit that Claim 1 is allowable over the art of record. Furthermore, since Claims 2-8 and 11-13 recite additional claim features and depend from Claim 1, these claims are also allowable over the art of record. Accordingly, Applicants respectfully request withdrawal of this rejection.

Claims 1-23, 32-34, 36-37 and 39-72 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over U.S. Patent No. 5,648,083 issued to Blieszner et al. (hereafter "Blieszner") in view of U.S. Patent No. 5,312,883 issued to Komatsu et al. (hereafter "Komatsu"). This rejection is respectfully traversed.

Applicants' discussion of Claim 1 may be relied upon as above. Claim 32 is directed to, *inter alia*, a wet wipe comprising a fabric sheet saturated with a wetting composition, wherein the fabric sheet comprises fibrous material and an ion-sensitive binder, and wherein the wetting composition contains less than about 5 weight percent of organic solvents; wherein the wet wipe has an in-use tensile strength of greater than about 100 g/in, wherein the wet wipe has a tensile strength of less than about 70 g/in after being soaked in water having a concentration of about 10 ppm of one or more multivalent ions for about one hour, wherein the wet wipe has a tensile strength of less than about 60% of the in-use tensile strength after being soaked in water having a concentration of about 200 ppm of one or more multivalent ions for about one hour.

Blieszner is directed to "compositions for cleaning and leaving a protective residue on the skin of a person, the composition being especially useful for reducing the risk of perineal dermatitis. The compositions contain water, a silicone oil and an emulsifier" (col. 3, lines 29-33). The ingredients of the composition are combined to produce a stable emulsion of the silicone oil that can quickly de-emulsify upon application to the skin (col. 3, lines 36-39). The water used may be deionized or tap water (col. 4, line 24). Tap water is economically preferred, though deionized water may be used to minimize interference with emulsification or provide manufacturing control (col. 3, lines 24-29). A disposable wipe product containing the Blieszner composition is described (col. 12, lines 50-60). A porous substrate is preferred as a delivery vehicle for the silicone oil containing composition in the wipe (col. 13, lines 1-5).

Blieszner does not specifically teach that ingredients of the composition can interact with the substrate or any of its polymeric components, but does state that the composition in the disposable wipe should not negatively impact the physical properties (col. 2, line 58).

*Wet* { Komatsu is directed to a salt-sensitive polymer which is soluble in ordinary tap water but insoluble in water containing at least 0.5% by weight of a neutral inorganic salt which has satisfactory strength and permeability to body fluid when it is used as a binder for non-woven fabric or paper. (col. 1, line 67 to col. 2, line 5). The focus on the effect of polymer composition on body fluid permeability suggests that the Komatsu binder is intended for dry product applications such as diapers and sanitary goods. This is reinforced by Komatsu's examples and test procedures in which the non-woven fabric is wetted for only 1 minute with synthetic urine before measuring wet strength or is dry when tested for permeability or dispersibility. Komatsu does not provide any details on the hard water used in the dispersibility test method described (col. 6, lines 64-68). Komatsu does not teach wetting compositions suitable for the binder. *not limited to dry nonwoven - it's onerous proves nothing* }

*77* { It is respectfully submitted that the combination of Blieszner and Komatsu fails to teach or suggest Applicants' claimed invention. Blieszner discloses a wipe product having a composition added that helps the wipe to provide good effective cleansing (col. 13, line 42). However, Blieszner fails to teach or suggest any strength, dispersibility, thickness, softness, and optical properties of the wipe product. Komatsu fails to remedy these deficiencies. The Examiner has stated that the properties claimed by Applicants are presumed to be suggested or would have been obvious, even though no support has been provided for this assumptions and determinations. However, the Examiner does acknowledge that Blieszner fails to teach or suggest the specific binder and activating compound, but relies upon Komatsu to allegedly teach these components. However, the materials disclosed by Komatsu still fail to satisfy Applicants' claimed properties. As set forth on pages 3-4 of the Specification, the salt sensitive polymer of Komatsu is not dispersible in water containing multi-valent ions. Additionally, as shown in Applicants' Examples and Comparative Examples, using the binder disclosed by Komatsu will result in wipes that do not satisfy Applicants' claimed invention. The Lion SSB-3b binder was made by Lion Corporation is the same as the binder disclosed in Komatsu. The properties of wet wipes made with the Lion SSB-3b salt sensitive polymer and Dur-O-Set RB blends of the Lion SSB-3b are described in figures 2 and 3 and examples 46 and 47 (table 29). Clearly, low concentrations of multivalent ions (calcium and/or magnesium) eliminate the dispersibility of these wipes. Example 4, table 7 further shows how the presence of calcium ions reduces the solubility of films cast from blends of a Komatsu salt sensitive polymer and Dur-O-Set RB. At calcium concentrations of 200 ppm, less than 20% of the Komatsu salt sensitive binder is soluble

as compared to 90% for the NaAMPS salt sensitive binder used in the current invention. As demonstrated with these examples, the Komatsu salt sensitive binder cannot produce a wet wipe with the strength and dispersibility properties described in the current invention.

Additionally, it is respectfully submitted that the combination of Blieszner and Komatsu fails to teach or suggest Applicants' claimed wet wipes. Adding a salt to a Blieszner composition will not fix Komatsu's dispersibility problem in water containing multi-valent ions since Blieszner does not teach how to improve the Komatsu binder and therefore, the deficiencies of Komatsu are still present. Also, adding salt to the Blieszner composition could *also break* its emulsion, which is counter to the teachings of Blieszner and therefore the combination of Komatsu and Blieszner would be improper. The Pemulen® emulsifiers are most preferred in the Blieszner compositions (col. 7, line 23). In the Noveon publication entitled "Introducing Pemulen® Polymeric Emulsifiers" (TDS-114, Edition: 9/99 from the internet) it is stated that Pemulen® emulsifiers have a "triggered release mechanism" in which the "hydrogel instantly deswells upon contact with the surface characteristics and salt content common on skin". The formulation guidelines and troubleshooting guide identify that high levels of electrolytes will negatively affect the stability of the Pemulen® emulsion. It is recommended that less than 0.1% of strongly ionizable salts be used. Komatsu requires at least 0.5% or more of a neutral inorganic salt. Thus, the salt levels needed to insolubilize the Komatsu binder would likely break the Blieszner emulsion. Alternatively, the low salt levels need to keep the Blieszner emulsion stable would fail insolubilize the Komatsu binder and fail to produce a wet wipe with the properties of the present invention. Also, using tap water in the wetting composition for economic reasons as taught by Blieszner would exacerbate Komatsu's dispersibility problems if the water is hard. And, lastly, Blieszner provides no guidance on design of the substrate. As such, it is respectfully submitted that the combination of Blieszner and Komatsu fails to teach or suggest Applicants' claimed invention.

For at least the reasons given above, Applicants respectfully submit that Claim 1 and Claim 32 are allowable over the art of record. Furthermore, since Claims 2-23, 33-34, 36-37 and 39-72 recite additional claim features and depend from Claim 1 or Claim 32, these claims are also allowable over the art of record. Accordingly, Applicants respectfully request withdrawal of this rejection.

Claim 29 stands rejected under 35 U.S.C. § 103 (a) as being unpatentable over Blieszner in view of Komatsu. This rejection is respectfully traversed.

Applicants' discussion of Claim 1 may be relied upon as above.

Applicants' discussion of Blieszner and Komatsu may be relied upon as above.

It is respectfully submitted that the combination of Blieszner and Komatsu fails to teach or suggest Applicants' claimed invention. As previously discussed, the combination of Blieszner and Komatsu fails to teach or suggest Applicants' claimed invention for the reasons cited above. As Claim 29 adds further claim features, it is respectfully submitted that Claim 29 is also not taught or suggested by the combination of Blieszner and Komatsu.

For at least the reasons given above, Applicants respectfully submit that Claim 1 is allowable over the art of record. Furthermore, since Claim 29 recites additional claim features and depends from Claim 1, this claim is also allowable over the art of record. Accordingly, Applicants respectfully request withdrawal of this rejection.

Claims 30-31 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over Blieszner in view of Komatsu and further in view of US 2001/0053753 issued to Engekhart (hereafter "Engekhart"). This rejection is respectfully traversed.

Applicants' discussion of Claim 1 may be relied upon as above.

Applicants' discussion of Blieszner and Komatsu may be relied upon as above.

Engekhart is directed to the use of fragrance solubilizers with fragrances.

It is respectfully submitted that the combination of Blieszner, Komatsu and Engekhart fails to teach or suggest Applicants' claimed invention. Simply adding a fragrance solubilizer will not solve the dispersibility problem of Komatsu and cannot produce a wet wipe with the properties described in the claims of the present application. Accordingly, it is respectfully submitted that the combination of Blieszner, Komatsu and Engekhart fails to teach or suggest Applicants' claimed invention.

For at least the reasons given above, Applicants respectfully submit that Claim 1 is allowable over the art of record. Furthermore, since Claims 30-31 recite additional claim features and depend from Claim 1, these claims are also allowable over the art of record. Accordingly, Applicants respectfully request withdrawal of this rejection.

Claim 35 stands rejected under 35 U.S.C. § 103 (a) as being unpatentable over Blieszner in view of Komatsu and further in view of U.S. Patent No. 6,121,170 issued to Tsai et al. (hereafter "Tsai"). This rejection is respectfully traversed.

Applicants' discussion of Claim 32 may be relied upon as above.

Applicants' discussion of Blieszner and Komatsu may be relied upon as above.



Tsai is directed to fibers and discloses that a suitable fiber length for flushable products is between 0.2 mm and 15 mm (col. 6, line 61 to col. 7, line 18).

It is respectfully submitted that the combination of Blieszner, Komatsu and Tsai fails to teach a wet wipe with the properties outlined in the claims of the present invention. Controlling the fiber length does not fix the deficiencies of the Komatsu binder, as discussed previously, or the incompatibilities between the low salt levels to stabilize the Blieszner compositions versus the higher levels needed to insolubilize Komatsu. As such, Tsai fails to remedy the deficiencies of Blieszner and Komatsu and, therefore, it is respectfully submitted that the combination of Blieszner, Komatsu and Tsai fails to teach or suggest Applicants' claimed invention.

For at least the reasons given above, Applicants respectfully submit that Claim 32 is allowable over the art of record. Furthermore, since Claim 35 recites additional claim features and depends from Claim 32, this claim is also allowable over the art of record. Accordingly, Applicants respectfully request withdrawal of this rejection.

Claims 24-28 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over Blieszner in view of Komatsu and further in view of Mumick. This rejection is respectfully traversed.

Applicants' discussion of Claim 1 may be relied upon as above.

Applicants' discussion of Blieszner, Komatsu and Mumick may be relied upon as above.

It is respectfully submitted that the combination of Blieszner, Komatsu and Mumick fails to teach or suggest Applicants' claimed invention. Blending cobinders with the Komatsu binder does not solve its dispersibility problems in water containing multi-valent ions. As discussed, the properties of wet wipes made with the Lion SSB-3b salt sensitive polymer and Dur-O-Set RB blends of the Lion SSB-3b are described in figures 2 and 3 and examples 46 and 47 (table 29). The Lion SSB-3b binder was made by Lion Corporation is the same as the binder disclosed in Komatsu. Dur-O-Set RB is a non-crosslinking poly(ethylene vinyl acetate) binder described on page 25 of the specification. These examples cover 100/0, 85/15, and 75/25 blends of a Komatsu binder with Dur-O-Set RB. Clearly, low concentrations of multivalent ions (calcium and/or magnesium) eliminate the dispersibility of these wipes. Example 4, table 7 further shows how the presence of calcium ions reduces the solubility of films cast from blends of a Komatsu salt sensitive polymer and Dur-O-Set RB. Blends ratios of 55/45 to 95/5 Komatsu binder to Dur-O-Set RB were evaluated. At calcium concentrations of 200 ppm, less than 20%

of the Komatsu salt sensitive binder is soluble as compared to 90% for the NaAMPS salt sensitive binder used in the current invention. The Komatsu salt sensitive binder cannot produce a wet wipe with the strength and dispersibility properties described in the current invention. Accordingly, it is respectfully submitted that the combination of Blieszner, Komatsu and Mumick fails to teach or suggest Applicants' claimed invention.

For at least the reasons given above, Applicants respectfully submit that Claim 1 is allowable over the art of record. Furthermore, since Claims 24-28 recite additional claim features and depend from Claim 1, these claims are also allowable over the art of record. Accordingly, Applicants respectfully request withdrawal of this rejection.

Claim 38 stands rejected under 35 U.S.C. § 103 (a) as being unpatentable over Blieszner in view of Komatsu and further in view of U.S. Patent No. 5,384,189 issued to Kuroda et al. (hereafter "Kuroda"). This rejection is respectfully traversed.

Applicants' discussion of Claim 32 may be relied upon as above.

Applicants' discussion of Blieszner and Komatsu may be relied upon as above.

Kuroda is directed to the use of wood pulp as the fibrous material for wet wipes (col. 2, lines 15-25).

It is respectfully submitted that the combination of Blieszner, Komatsu and Kuroda fails to teach a wet wipe with the properties outlined in the claims of the present invention. Using wood pulp does not fix the deficiencies of the Komatsu binder (noted above) or the incompatibilities between the low salt levels to stabilize the Blieszner compositions versus the higher levels needed to insolubilize Komatsu.. As such, Kuroda fails to remedy the deficiencies of Blieszner and Komatsu and, therefore, it is respectfully submitted that the combination of Blieszner, Komatsu and Kuroda fails to teach or suggest Applicants' claimed invention.

For at least the reasons given above, Applicants respectfully submit that Claim 32 is allowable over the art of record. Furthermore, since Claim 38 recites additional claim features and depends from Claim 32, this claim is also allowable over the art of record. Accordingly, Applicants respectfully request withdrawal of this rejection.

### **III. Conclusion:**

For at least the reasons given above, Applicants submit that Claims 1-72 define patentable subject matter. Accordingly, Applicants respectfully request allowance of these claims.

The foregoing is submitted as a full and complete Response to the Office Action mailed March 25, 2003, and early and favorable consideration of the claims is requested.

Should the Examiner believe that anything further is necessary in order to place the application in better condition for allowance, the Examiner is respectfully requested to contact Applicants' representative at the telephone number listed below.

No additional fees are believed due; however, the Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, to Deposit Account No. 11-0855.

Respectfully submitted,

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